

Abstract of the Disclosure

A light sensor circuit based on direct connection of LEDs to I/O pins of a microcontroller. The LEDs are reverse biased and the parasitic junction capacitance is charged in an output mode. Then, the I/O pins placed into an high-impedance input mode. The time for the capacitance to be discharged by photoconduction caused by light incident on the LEDs is inversely proportional to an intensity of the incident light, and can be directly measured as the time required for the I/O pin to transition from fully-charged (5 volts) to a logic threshold level (1.7 volts). By using multiple LEDs, multiplexed between emissive and sensing modes, a wide variety of sensors can be constructed, particularly, when the LEDs emit light at different wavelength.